IDAHO
DEPARTMENT OF FISH AND GAME

Jerry M. Conley, Director

SAWTOOTH HATCHERY

Annual Report

1 October 1982 - 30 September 1983

By

Thomas L. Rogers
Fish Hatchery Superintendent III

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ABSTRACT

The new Sawtooth Hatchery began construction in the spring of 1983 as a part of the Lower Snake River Fish and Wildlife Compensation Plan. Its primary purpose will be for the production of spring chinook salmon and steelhead. A satellite facility was completed in the fall of 1983 to trap and hold spring chinook salmon and steelhead for programs at Sawtooth, Magic Valley Steelhead and Hagerman National Hatcheries.

Spring chinook salmon were trapped and spawned at the Sawtooth site this year utilizing a temporary fish trap and weir. Three hundred sixty-six chinook adults were counted through the trap between July 19 and September 5, 1983. We held 348 adult salmon for spawning and took 650,196 eggs which were shipped to McCall Hatchery for incubation and rearing.

Author:

Thomas L. Rogers
Fish Hatchery Superintendent III

OBJECTIVES

1. Trap, hold and spawn spring chinook salmon at the Sawtooth Hatchery site. .

2. Collect approximately 600,000 spring chinook eggs and ship them to the McCall Hatchery for incubation and rearing.

3. Provide a release site for spring chinook salmon smolts from the McCall Hatchery that will return to Sawtooth Hatchery as adults.

4. Develop a working knowledge of Sawtooth Hatchery and the East Fork satellite through the construction phase. Report any operational difficulties that may arise due to design or construction problems.

INTRODUCTION

The Sawtooth Hatchery is part of the Lower Snake River Fish and Wildlife Compensation Plan to compensate for losses caused by the Lower Snake River dams. It is being constructed along the upper reaches of the Salmon River, five miles south of Stanley in Custer County, Idaho. This project also includes a satellite facility located sixteen miles up the East Fork of the Salmon River, also in Custer County. Both facilities are being constructed by the U.S. Army Corps of Engineers and will be operated by the Idaho Department of Fish and Game under contract funding by the U.S. Fish and Wildlife Service.

The hatchery has an expected substantial completion date of December 1, 1984, and will have the capacity to produce three million spring chinook smolts. The hatchery will also collect steelhead eggs to supply two hatcheries in the Hagerman area.

The East Fork Satellite facility is complete at this time and will be used to trap, hold and spawn chinook salmon and steelhead for the production programs at Sawtooth, Magic Valley Steelhead and Hagerman National hatcheries.

Sawtooth Hatchery personnel trapped and spawned spring chinook at the hatchery site this year as in the past several years and transported the green eggs to the McCall Hatchery for incubation and rearing. These fish will be returned to Sawtooth for planting.

TECHNIQUES USED

Salmon Trap

A temporary fish weir and trap were installed at the Sawtooth Hatchery site on July 19, 1983. All spring chinook that entered the trap were counted and sexed before being released in the holding pond.

Beginning on August 5, the chinook adults were sorted, checked for ripeness and spawned biweekly. All eggs were then packed in iced-down coolers and shipped by plane to McCall Hatchery.

The spawned out carcasses were checked for Kidney Disease lesions and were given to the public or to the Sho-Ban Indian biologist for distribution on the Fort Hall Indian Reservation.

After the maximum amount of incubation space was filled at the McCall Hatchery, the remaining chinook were released to spawn naturally. The fish trap was kept in operation until September 9, to enumerate upstream migrants.

Hatchery Construction

During the hatchery and satellite construction, a photographic slide file was established to record the location of buried structures and labeled as to their function. Time was also spent going over design drawings and construction techniques to help develop a working knowledge of the overall hatchery and satellite operations. The dialogue between the operator and constructors has helped clarify hatchery functions and needs.

FINDINGS

Spring Chinook Smolt Release History

Releases of hatchery reared spring chinook smolts at the Sawtooth Hatchery site occurred in *1979* with a total of 914,000 smolts released. These fish were from Rapid River stock. The next release of 167,895 smolts was in 1983 and were from fish spawned at the Sawtooth site. No releases were made in 1980, 1981 or 1982.

Trapping

The chinook trap and weir were installed on July 19 and taken out of operation on September 9, 1983. A total of 366 adult chinook were counted through the trap which included 170 males, 179 females and 17 jacks.

Pre-spawning Mortality

We held 348 adult chinook through the spawning season. A total of 43 chinook or 12.4% were recorded as pre-spawning mortality which included 33 females and 10 males. Pre-spawning mortality causes included 35 due to nitrogen and/or fungus, 3 due to Kidney Disease and 3 of unknown causes.

Spawning

Spawning operations began on August 5 and ended on August 31, 1983. We spawned 138 female chinook which produced 650,196 eggs for an average of 5,080 eggs per female.

Eggs

We shipped 650,196 green eggs to the McCall Hatchery which eyed up at at rate of 82.8% or 538,132 eyed eggs on hand at McCall.

Released Adult Chinook

There were 97 chinook released to spawn naturally which included 19 female and 78 males. 162 redds were observed above the temporary weir in addition to the fish released at the trap site.

Carcass Disposition

Spawned-out fish carcasses were given to the public and to the Sho-Ban Indian Biologist for distribution on the Fort Hall Indian Reservation. Unsalvageable salmon were buried in the "borrow pit" on the Sawtooth Hatchery site.

Diseases and Treatments

All adult chinook mortality and spawners were necropsied and checked for fungus, Kidney Disease lesions and injuries. Of the 348 chinook examined, 35 had fungus growth, 15 were found with Kidney Disease lesions, 15 had nitrogen blisters and 4 with gill net scars.

The eye fluke (Diplostomum spathaceum) is indigenous to the upper Salmon River drainage. An on-going eye fluke study conducted by Dr. Richard Heckman from Brigham Young University was completed this year. A final report and recommendations are available in the Fish and Game library. A training session for the staff of the hatchery has been planned to emphasize management of the eye fluke disease. The Sawtooth Hatchery has been designed to minimize the eye fluke disease and with proper management, the disease should not adversely affect the production of smolts at Sawtooth.

Sawtooth Hatchery Construction

The Sawtooth Hatchery is from 40% to 45% complete at this time. Four thousand (4,000) yards of concrete have been placed out of the approximately 6,700 yards needed. Most of the main water transmission pipes have been put in place along with sewer lines, domestic water lines and the septic tank. Settling ponds are to grade and 60% complete. Framing on the seasonal employees dormatory has begun and has a temporary roof on it. Raceways are approximately 90Z complete with piping tied in. Work has begun on the weir bridge with wing walls and steel piers in place. The hatchery building has some footings placed along with the front columns poured. Exceptionally good weather this fall permitted work to continue and make up some lost time from a slow start this summer.

East Fork Satellite Construction

The East Fork Satellite construction was completed this fall. The facility will be operational for the 1984 trapping and spawning season of spring chinook and steelhead. A photographic slide file has been kept during construction on buried structures at this site to aid in the future operation on this facility.

RECOMMENDATIONS

Sawtooth Hatchery is a critical component in the recovery of spring chinook salmon numbers into Idaho along with the enhancement of the steelhead fishery. Until the hatchery construction is complete and the incubation and rearing facilities at Sawtooth can be utilized, continued egg bank and rearing facilities at another location will have to be provided to insure the viability of this severely depressed stock of chinook.

It is also recommended that an adult Erythromycin injection program to prevent Kidney Disease be incorporated in 1984.

Carcass disposition at both the Sawtooth Hatchery and the satellite facility needs to be addressed in the near future. It is recommended that a freezer trailer be utilized to store and haul chinook and steelhead carcasses.

ACKNOWLEDGEMENTS

I wish to thank those who helped install the temporary weir and trap at Sawtooth including: Bob Stenerson; Ralph Hutchinson; Fred Partridge; Wayne Wakkinen; Gary Gadwa; Hary Forsgren and Stanley Bercovitz.

Thanks also go to the McCall Hatchery personnel for their assistance during the spawning operation and to the Idaho Department of Fish and Game enforcement personnel for their enforcement work.

Hatchery staffing during the year included Thomas L. Rogers, Fish Hatchery Superintendent III, and Arnie Miller, Biological Aide.

SAWTOOTH HATCHERY FISH TRAP COUNT

1983

Spring Chinook Salmon

Date	Males	Females	Jacks	Running Total
7/20	4	4		8
21	4	13		25
22	4	3		32
23	4	6		42
24	6	1	1	50
25	4	7	1	62
26	5	8	1	76
27	3	6	1	86
28	7	4	1	98
29	2	12		112
30	4	6	1	123
31	9	12		144
8/01	2	4	2	152
2	6	2		160
3	2	7	1	170
4	2	5		177
5	2	1		180
6	2	7		189
7	9	0	1	199
8	3	1	2	205
9	1	1		207
10	4	1	1	212
11	4	5		222
12	2	0		224
13	0	1		225
14	0	1		226
15	2	0		229
16	4	1		233
17	4	3		240
18	2	6	1	249
19	8	0	1	258
20	3	5		266
21	6	1		273
22	1	2		276
23	8	2		*286*
24	7	8		301
25	7	4		312
26	4	7		323
27	1	4		328
28	0	2		330
29	7	1	1	339
30	0	3		342
31	1	4	1	348
9/01	5	4		357
2	3	1		361
3	2	2		365
4	0	1		366
TOTALS	170	179	17	366

SAWTOOTH HATCHERY - 1983

Spring Chinook Length Frequency
(Adult Returns)

Total Chinook Measured - 269

Released not Measured - 97

Total Chinook Trapped - 366

Fork Length (inches)	Number	
18	1	
19	1	
20	5	
21	3	
22	0	
23	1	
24	1	
25	0	
26	0	
27	1	
28	2	
29	2	
30	5	
31	4	
32	2	
33	7	
34	19	
35	22	
36	60	
37	50	
38	26	
39	19	
40	17	
41	11	
42	8	
43	0	
44	2	
TOTAL	269	Measured Chinook

SAWTOOTH HATCHERY

Spring Chinook Spawning Summary - 1983

Date	Females Spawned	No. Eggs Taken	Total Eggs Taken
8/5	4	13,764	13,764
8/9	3	10,800	24,564
8/12	3	17,136	41,700
8/16	6	26,280	67,980
8/19	13	63,336	131,316
8/23	21	118,440	249,756
8/26	32	149,760	399,516
8/31	46	250,680	650,196
Totals	128	650,196	